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## THREE NEW AND ONE UNRECORDED SPECIES OF *ODONATA* FROM KOREA

By

TEIICHI OKUMURA

(With Plates I-IV and two Textfigures)

In this paper will be found descriptions of three new and one unrecorded species of *Odonata* from Korea, sent for determination to the present writer by Messrs. H. DOI and K. HAKU.

Sincere thanks are expressed to Professor Emeritus S. MATSUMURA who has read through this manuscript. The writer's gratitude is due also to Professor K. OGUMA, Asst. Professor T. UCHIDA, and Dr. C. WATANABE for their kind suggestions in regard to the completion of this work. Further, many thanks are offered to Messrs. S. MITSUHASHI and Y. SUGIHARA for their kindness in examining the literature.

### ***Ophiogomphus forficula*** OKUMURA n. sp. (Plate I and Fig. 1)

A stout, khaki species of rather large size, with narrow black stripes on the thorax, the abdomen dull khaki with narrow black markings (probably a dull yellow-green species in life).

Male (adult): Frons, ante- and postclypeus, as well as labrum dull yellow-green, the narrow anterior margin at the horizontal surface of labrum being black; mandible black; gena dull yellow-green; lateral and median lobes of labium dull ochre-yellow; vertex, occiput, epicranium, and antennae black. Eyes dull dark brown (probably dark greenish glaucous in life). Prothorax black, with three rather dull khaki spots in a transverse row upon the collar, on each side of which there is a brush of long bristles. Synthorax dull khaki, a dull khaki line narrowly separating the middorsal black stripe at the middle of the carina; collar black. There is a narrow khaki line in the black antehumeral stripe along the humeral suture. A narrow black stripe present in the humeral suture, extending to the lower part of the mesepimeron. Lower second lateral black stripe not encircling the spiracle, but extending a little beyond. Metepimeron entirely dull khaki. Legs black, the fore femora at the inner surface black. Wings entirely hyaline, tinted with light lemon yellow near the

base; veins black; pterostigma brown to dark brown. Basal subcostal cross vein absent in both wings. Triangles free from cross veins. Fore wing with 15 antenodals and 11 postnodals. Hind wing with an anal loop of 3 cells. Abdomen dark brown, marked with dull khaki; 1st and 2nd tergites with a median longitudinal dull khaki stripe; auricles and genitalia of the 2nd segment black; 3rd to 7th segments with a median dorsal longitudinal dull khaki stripe which does not extend from the base to the apex; 7th to 9th segments much expanded laterally, the 8th being the widest; 8th and 9th segments with each 3 rectangular khaki markings in a transverse row; 10th segment dull khaki, with a narrow black border at the apex. Anal appendages dull khaki; the inferior dark brown at the edge; the superior obliquely projected outwardly and ending in a round point, with a robust ventral claw-like process beneath the apex visible in lateral view; the inferior slightly longer than the superior, stout, cylindrical, with an inwardly curved hook at the apex partly visible from above; the superior stout, gradually becoming thin to the apex; the inferior nearly parallel, contiguously forming a pincers-like appearance, the apex curved upwardly, with three or four minute teeth. Genitalia of the 2nd segment as shown in Plate I.

Female (adult): Closely similar to the male in colour and markings, but the markings of abdomen paler; occiput with black-tipped processes on the ridge as in Fig. 1; abdomen more widened, the segments being not so slender as in the male; vulvar scale stout and short.

Length:

♂ abd. app. 35 mm., hw.

35 mm., pterostigma 3.5 mm.

♀ abd. app. 40.5 mm., hw. 36.5 mm., pterostigma 5 mm.

Holotype (♂): Yotoku, Heian-nando, 5/VIII, 1933 (H. Doi).

Allotype (♀): Onpo, Shuotsu, Kankyo-hokudo, 16/IX, 1936 (H. Doi).

Paratypes: Yotoku, Heian-nando, 3 ♂♂, 5/VIII, 1933 (H. Doi); Onpo, Shuotsu, Kankyo-hokudo, ♀ ♂, 13/IX, 1936 (H. Doi).

Habitat: Korea.

Nom. Jap.: *Chosen-ao-sanae*.

This species is nearly similar to *Ophiogomphus spinicorne* SELYS, from which it may be distinguished by the thoracic stripes, the structure of the genitalia



Fig. 1

Occipital processes of *Ophiogomphus forficula* (♀)  
(frontal view)

of the 2nd segment and of the anal appendages.

*Ophiogomphus* is a holartic genus and the present species is the only one of this genus as yet found in Korea.

The holo- and allotype are deposited in the writer's cabinet, and the paratypes are preserved in the collection of Mr. H. DoI., who<sup>1)</sup> lists this species as a *Nihonogomphus* species (*Chosen-ao-sanae*).

***Gomphus emarginatus* OKUMURA n. sp. (Plate II)**

This is a rather large, black species with pale ochre-yellow markings.

Male (adult): Head black, the frons and labrum pale ochre-yellow. Eyes dull dark brown (probably dark greenish glaucous in life). Prothorax black, with three small pale ochre-yellow spots. Frontal part of synthorax black, two longitudinal pale ochre-yellow stripes not meeting at the crest, and reaching to the collar, with a narrow ochre-yellow band; there is a very narrow ochre-yellow streak along the humeral suture, and a small ochre-yellow spot near the scapula; mesepimeron possessing a pale ochre-yellow stripe between the humeral and second lateral sutures, and decorated with a black stripe along the humeral suture; a greater part of the metepisternum and metepimeron pale ochre-yellow. Legs black. Wings hyaline, pterostigma brown to dark brown. Fore wing with 13 antenodals and 9 postnodals; hind wing with 10 antenodals and 11 postnodals. Abdomen black, with pale ochre-yellow stripes; middorsal longitudinal stripe yellow and the auricles ochre-yellow; 3rd to 7th segments mostly black, with a small basal ochre-yellow spot on each side; 7th segment with an ochre-yellow spot at the middle of the lateral sides; 8th and 9th segments with a large ochre-yellow spot on each side; the rear of 7th segment and the 8th and 9th segments expanded laterally; 10th segment black. Anal appendages black; superior appendages slightly longer than the last segment, rapidly tapering towards the apex as shown in Plate II; inferior appendages much broader than long, being a little longer than the superior, gradually tapering towards the apex, and broadly emarginated at the posterior margin, with a minute blunt tooth near the corner. Genitalia of the 2nd segment black (Plate II).

Female: Unknown to the author.

Length: abd. app. 37.5 mm., hw. 31 mm., pterostigma 4 mm.

Holotype (♂): Kyuhozan, Gijogun, Keisho-hokudo, 5/VI, 1935 (K. HAKU).

Habitat: Korea.

Nom. Jap.: *Chosen-ko-kiro-sanae*.

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1): Journ. Chosen Nat. Hist. Soc., No. 17, p. 66 (1934).

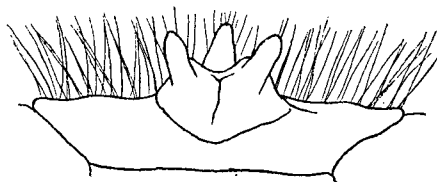
This species is near to *Gomphus melanops* SELYS, from which it is differentiated by the structure of the anal appendages. The holotype is preserved in the writer's cabinet.

***Gomphus coreanus* DOI et OKUMURA n. sp. (Plate III and Fig. 2)**

This is a rather large black species, striped with pale lemon yellow, and the abdomen is black.

Male (adult): Vertex and frons lemon-yellow; ante- and postclypeus black, the former with a small pale lemon-yellow spot on each side; labrum black, with two oval pale lemon-yellow spots; mandible pale lemon-yellow at the base; antennae black. Eyes dull dark brown (possibly dark greenish glaucous in life). Prothorax black, with three pale lemon-yellow spots. Synthorax black, the two geniculated markings pale lemon-yellow, reaching to the collar, and acute at the angle; humeral suture with a narrow concolorous stripe; collar black, yellow at the sides, with a black stripe on the humeral suture which reaches beyond the second lateral suture; third lateral suture with an unbroken narrow black stripe. Wings hyaline, the veins including the costa black. Fore wing with 16 antenodals and 13 postnodals; hind wing with 10 antenodals and 12 postnodals. Pterostigma brown. Legs black. Abdomen black; basal segments pale lemon-yellow laterally, and dorsally black, with pale lemon-yellow middorsal stripes; 3rd to 6th tergites with each a basal pale lemon-yellow spot; 7th segment with a broad pale lemon-yellow semi-ring at the base; 8th segment with a concolorous latero-ventral spot; ventral of the 9th segment with a broad pale lemon-yellow stripe on each side, and with a pale lemon-yellow stripe on the posterior margin; 10th segment, anal appendages, and genitalia of the 2nd segment black. Abdomen thickened at the base; 3rd to 6th segments cylindrical; 7th to 9th segments strongly widened laterally; 7th segment at the rear and the 8th expanded broadly. Anal appendages tapered towards the apex, obliquely projected outwardly, sharply pointed at the apex, and as long as the last segment; the inferior a little longer than the superior, gradually bending upward.

Female (adult): Closely similar to the male in colour and markings, but the markings of abdomen are pale, especially the 3rd to 6th segments with a broken longitudinal broad stripe on each side; 7th segment with a pale dull yellow, broad semi-ring at the base; occiput with a forked process on



**Fig. 2**

Occipital process of *Gomphus coreanus* (♀)  
(frontal view)

the ridge as in Fig. 2; 7th to 9th segments not so broadly widened as in the male; anal appendages black.

Length: ♂ abd. app. 42 mm., hw. 36 mm., pterostigma 4 mm.

♀ " 46 mm., " 39 mm., " 5 mm.

Holotype (♀) & Allotype (♂): Kyuhozan, Gijogun, Keisho-hokudo, 4/VI, 1935 (K. HAKU).

Paratypes: Kyuhozan, Gijogun, Keisho-hokudo, 1 ♀, 4/VI, 1935 (K. HAKU); Taikyū, Keisho-hokudo, 1 ♂, 2 ♀ ♀, 4/IV, 1935 (K. HAKU).

Habitat: Korea.

Nom. Jap.: *Chosen-kiiro-sanae*.

This species stands near *Gomphus pryeri* SELYS, from which it is easily distinguishable by the structure of the anal appendages. All the types are deposited in the collection of the writer. This species is listed by Mr. H. Doi<sup>1)</sup> as a *Gomphus* species (*Chosen-kiiro-sanae*).

### ***Davidius lunatus* BARTENEV (Plate IV)**

BARTENEV, Horae Soc. Ent. Ross., 41, (2), p. 24 (1914); RIS, Odonata, Suppl. Ent., 5, p. 48 (1916).

This is a pretty, stout, dark brown species of small size, striped with pale ochre yellow, and the abdomen is black.

Male (adult): Labium, labrum, ante- and postclypeus dark brown; occiput and frons ochre-yellow; vertex and antennae black. Eyes dark brown (probably dark greenish glaucous in life). Prothorax black, with a small ochre-yellow spot on each side. Synthorax black, in front with a transverse ochre-yellow band which reaches to the collar, with an ochre-yellow band on each side below, the upper part of an ochre-yellow band not meeting at the crest, with a small ochre-yellow spot near the scapula; mesepimeron with a broad ochre-yellow stripe between the humeral and second lateral sutures, which expand upwardly, with a black stripe along the latter at the lower side, and with another black stripe along the former at the upper side; metepisternum dark brown, with an ochre-yellow stripe expanded towards the upper part; a narrow black stripe being visible along the third lateral suture; a greater part of metepimeron ochre-yellow. Legs black. Wings hyaline, with veins black, stigma raw-umber, and with a touch of flavescence at the base of the membrane. Basal subcostal cross vein absent in both wings; there are 11 antenodals and 10 postnodals in the fore wing. Abdomen black with ochre-yellow markings; 1st and 2nd segments ochre-yellow laterally, with each a median longitudinal ochre-yellow stripe; auricles ochre-yellow; genitalia of the 2nd

1): Journ. Chosen Nat. Hist. Soc., No. 21, p. 105 (1935).

segment black; 3rd segment with one basal and two lateral stripes of ochre-yellow; 4th to 7th segments with ochre-yellow spots on each side; 8th to 10th segments unmarked. Tergum of the 10th segment elevated on the middle part. Anal appendages dark brown to black; superior appendages much shorter than the last segment, stout, somewhat z-shaped, sharply pointed at the apex, and inwardly curved; the inferior shorter than the superior, straight and stout, being blunt and rounded at the apex, and bearing a blunt process near the apex.

Female (adult): Closely allied to the male in colour, but the ochre-yellow stripes of the 1st to 3rd segments broader than in the male; 4th to 8th segments with lateral and basal quadrangular ochre-yellow spots; 9th and 10th segments unmarked. Abdomen more widened, the segments not so slender as in the male. Vulvar scale stout and short.

Length: ♂ abd. app. 27 mm., hw. 23 mm., pterostigma 3 mm.

♀ " " 2.75 mm., " 25 mm., " 3.5 mm.

Loc.: Taikyu-zenzan, Keisho-hokudo, 10/V, 1935 (K. HAKU).

Gen. Distr.: Manchuria and Korea.

Nom. Jap.: *Chosen-hime-sanae*.

This species is new to the fauna of Korea.

## 摘 要

筆者は土居寛暢、白甲鑑兩氏の採集に係る朝鮮産蜻蛉類を検し三新種一未録種を發見したれば本文に於て學界に公表せり。是等の學名並に和名は次の如し。

- |  |                     |
|--|---------------------|
| 1. <i>Ophiogomphus forficula</i> OKUMURA (n. sp.)  | テウセンアラサナヘ (新種 新稱)   |
| 2. <i>Gomphus emarginatus</i> OKUMURA (n. sp.)     | テウセンコキイロサナヘ (新種 新稱) |
| 3. <i>Gomphus coreanus</i> DOI et OKUMURA (n. sp.) | テウセンキイロサナヘ (新種 新稱)  |
| 4. <i>Davidius lunatus</i> BARTENEF                | テウセンヒメサナヘ (新稱)      |

尙茲に貴重なる標本を惠贈せられし上記兩氏に深厚なる謝意を表する次第なり。

**Explanations of Plates**

## Plate I.

*Ophiogomphus forficula* n. sp. (♂)

- A. Genitalia of the 2nd segment (lateral view).
- B. Anal appendages (dorsal view).
- C. Ditto (lateral view).
- D. Colour-pattern of the synthorax.

## Plate II.

*Gomphus emarginatus* n. sp. (♂)

- A. Genitalia of the 2nd segment (lateral view).
- B. Anal appendages (dorsal view).
- C. Ditto (lateral view).
- D. Colour-pattern of the synthorax.

## Plate III.

*Gomphus coreanus* n. sp. (♂)

- A. Genitalia of the 2nd segment (lateral view).
- B. Anal appendages (dorsal view).
- C. Ditto (lateral view).
- D. Colour-pattern of the synthorax.

## Plate IV.

*Davidius lunatus* BARTENEV (♂)

- A. Genitalia of the 2nd segment (lateral view).
- B. Anal appendages (lateral view).
- C. Ditto (dorsal view).
- D. Colour-pattern of the synthorax.



